AMENDMENTS TO THE CLAIMS

Claim 1 (withdrawn): A method of reducing systemic release of radioactive decay intermediates upon administration of a radionuclide-emitting radionuclide to an individual, comprising the steps of:

incorporating said radionuclide into large liposomes having a diameter sufficient to retain within a membrane radioactive decay intermediates; and

administering said large liposomes to said individual, wherein retention within said large liposomes of said radioactive decay intermediates caused by said radionuclide reduces the systemic release thereof.

Claim 2 (withdrawn): The method of claim 1 further comprising:

entrapping said radionuclide in smaller liposomes prior to incorporating said radionuclide contained therein into said larger liposome.

Claim 3 (withdrawn): The method of claim 2 further comprising:

labeling said smaller liposomes with a ligand.

Claim 4 (withdrawn): The method of claim 1 further comprising the step of:

coating outer membrane surfaces of said liposomes with molecules which preferentially associate with a specific target cell to increase specificity of said large liposomes to said target cell.

Claim 5 (withdrawn): The method of claim 4 wherein said target cell is a cancer cell, a virally infected cell, an autoimmune cell, or a [illegible].

Claim 6 (withdrawn): The method of claim 4 wherein said molecules are antibodies, peptides, engineered molecules or receptors.

Claim 7 (withdrawn): The method of claim 6 wherein said antibodies are Herceptin.

Claim 8 (withdrawn): The method of claim 1, further comprising the steps of:

preinjecting the individual with empty la

saturating the reticuloendothelial orge specific spleen and liver uptake of said radionuclide upon adm

Claim 9 (withdrawn): The m large liposomes have a diameter of about 100 nm to

Claim 10 (withdrawn): The metho large liposomes comprise molecules incorporated into s large liposomes.

Claim 11 (withdrawn): The metho stabilizing molecules are polyethyleneglycol-linked lipids (PE

Claim 12 (withdrawn): The method o stabilizing molecules further comprise an antibody, peptide, e or fragment thereof attached thereto.

Claim 13 (withdrawn): The method in said large liposomes comprise a stabilizing agent incorporated queous phase with a high pH thereby further facilitating ve decay intermediates.

Claim 14 (withdrawn): The method of claim izing agent is a phosphate buffer, insoluble metal binding p molecules or halogen binding molecules.

Claim 15 (withdrawn): The method of claim liposomes comprise additional molecules, on with target cells or facilitating endocytosis by

Claim 16 (withdrawn): The method of claim 1, wherein said alpha particle emitting radionuclide is incorporated into the aqueous phase of a compound.

Claim 17 (withdrawn): The method of claim 1, wherein said alpha particle-emitting radionuclide is 225Ac, 223Ra, 213Bi, or 211At.

Claim 18 (withdrawn): The method of claim 1, wherein said beta particle-emitting radionuclide is a daughter of a beta particle-emitting radionuclide, wherein said beta particle-emitting radionuclide is incorporated into the aqueous phase.

Claim 19 (withdrawn): The method of claim 1, wherein said beta particle-emitting radionuclide is 212Pb.

Claim 20 (currently amended): A method for treating an individual for liposomal delivery of an alpha particle-emitting radionuclide with reduced systemic release of radioactive decay intermediates, comprising:

entrapping passively said radionuclide into liposomal vesicles;

incorporating said entrapped radionuclide into a population of large liposomes, said liposomes having a diameter sufficient to retain a majority of the radioactive decay intermediates of said radionuclide, wherein said liposomes comprise polyethyleneglycol-linked lipids (PEG-lipids) or derivatives thereof; and

a targeting agent attached to the PEG-lipids, wherein said targeting agent is specific to the cells; and

delivering said radionuclide to the cells, wherein said targeting agents target the cells while retention within said large liposomes of said radioactive decay intermediates produced by said radionuclide reduces the systemic release.

Claim 21 (original): The method of claim 20, further comprising labeling said smaller liposomal vesicles with a detectable label.

Claim 22 (original): The method of claim 20, further comprising the steps of:

preinjecting the individual with empty liposomes.

saturating the reticuloendothelial organs to reduce non-tumor specific spleen and liver uptake of said radionuclide upon delivery.

Claim 23 (original): The method of [illegible] large liposomes have a diameter of about [illegible] about 1[illegible].

Claim 24 (original): The method [illegible] targeting agents are antibodies, peptides, engineered [illegible].

Claim 25 (original): The method [illegible] at least some of said antibodies are Herceptin.

Claim 26 (original): The method [illegible] targeted cells are cancer cells, virally infected cells, autoreactive [illegible].

Claim 27 (original): The method [illegible] said large liposomes further comprise a stabilizing agent incorporated in an aqueous phase with a high pH thereby further retaining [illegible] active decay intermediates.

Claim 28 (original): The method of [illegible] stabilizing agent is a phosphate buffer, insoluble metal [illegible] metal-binding molecules or halogen binding molecules.

Claim 29 (original): The method of [illegible] said large liposomes further comprise additional molecules, said [illegible] fusion with target cells or facilitating endocytosis by [illegible].

Claim 30 (original): The method of [illegible] particle emitting radionuclide is incorporated into the [illegible] liposomal vesicles as a chelation compound.

Claim 31 (original): The method of [illegible] in said alpha-particle-emitting radionuclide is ^{225}Ac, ^{223}Ra, ^{213}Bi or [illegible].

Claim 32 (original): The method of c... said alpha particle-emitting radionuclide is a ... of a be... radionuclide, wherein said beta particle-emitting ... is entr... liposomal vesicles.

Claim 33 (original): The ... said beta particle-emitting radionuclide is ^{212}Pb.

Claim 34 (withdrawn): A method ... expressing HER-2/neu protein in an individual for ... with reduced systemic release of radioactive decay ... steps of:

entrapping said Ac-225 with ...

incorporating said entrapped Ac-... of large liposomes, said liposomes having a ... majority of the radioactive decay intermediates of Ac-225, ... polyethyleneglycol-linked lipids (... into outer membranes thereof; and

Herceptin antibodies attached to ...

delivering said Ac-225 to the cance... targets the HER-2/neu protein expressed on the cells ... liposomes of said radioactive decay intermediates, ... reduces the systemic release thereof.

Claim 35 (withdrawn): The method of ... labeling said smaller liposomal ...

Claim 36 (withdrawn): The method of ... steps of:

preinjecting the individual with empty ...

saturating the reticuloendothelial organs ... spleen and liver uptake of said radionuclide upon ...

Claim 37 (withdrawn): The method of claim [illegible] wherein said large liposomes have a diameter of about [illegible] nm to about 100

Claim 38 (withdrawn): The method of c[illegible] cancer cells comprise an ovarian carcinoma.

Claim 39 (withdrawn): The m[illegible] said large liposomes further comprise a stabilizing agent [illegible] an aqueous phase with a high pH thereby further facilitating [illegible] decay intermediates.

Claim 40 (withdrawn): The method [illegible] said stabilizing agent is a phosphate buffer, insoluble metal bi[illegible] metal-binding molecules or halogen binding molecules.

Claim 41 (withdrawn): The m[illegible] said large liposomes further comprise additional molecules [illegible] membrane fusion with target cells or facilitating endocytosis b[illegible]

Claim 42 (withdrawn): The m[illegible] Ac-225 is chelated.

Claim 43 (withdrawn): An e[illegible] radionuclide, comprising:

said alpha particle emitting radionuclide;

small liposome vesicles e[illegible] radionuclide; and

a large liposome incorporating said small liposome having a diameter sufficient to retain at least a [illegible] intermediates, said alpha particle emitting radionuclide [illegible]

Claim 44 (withdrawn): The encapsulated r[illegible] comprising:

labeling said smaller liposomal ves[illegible]

Claim 45 (withdrawn): The encapsul... of claim 43, wherein said alpha particle emitting ...nuclide is 2... 212Pb, or 211At.

Claim 46 (withdrawn): The enc... of claim 39, wherein said alpha particle-emitting radionuclide ... ...-emitting radionuclide, wherein said beta particle-...

Claim 47 (withdrawn): The enc... of claim 46, wherein said beta particle-emitting radionuclide is ...

Claim 48 (withdrawn): The ... of claim 43, wherein said radionuclide associates with a ... ...posome or is incorporated into the aqueous compartment of ... ...s a chelation compound.

Claim 49 (withdrawn): The ... ...said large liposomes have a diameter of about ...

Claim 50 (withdrawn): The enc... of claim 43, wherein said large liposomes further comprise m... ...associate with a target cell, said molecules coating outer ... ...said large liposomes.

Claim 51 (withdrawn): The enc... of claim 50, wherein said molecules are antibodies, peptides ... thereof.

Claim 52 (withdrawn): The encap... wherein at least some of said antibodies are bispecific.

Claim 53 (withdrawn): The encapsulated [redacted] of claim 50, wherein said target cell is a cancer cell, a virally infected [redacted] cell, or an inflammatory cell.

Claim 54 (withdrawn): [redacted] claim 43, wherein said large liposomes further [redacted] into outer membranes to stabilize said large liposomes.

Claim 55 (withdrawn): The [redacted] said stabilizing molecules further comprise an antibody, [redacted] or fragment thereof attached thereto.

Claim 56 (withdrawn): The [redacted] claim 54, wherein said stabilizing molecules are [redacted] acids).

Claim 57 (withdrawn): The [redacted] of claim 43, wherein said large liposomes comprise a stabilizer [redacted] or have an aqueous phase with a high pH.

Claim 58 (withdrawn): The [redacted] of claim 57, wherein said stabilizing agent is a phosphate [redacted] polymer, resin beads, metal-binding molecules or halogens.

Claim 59 (withdrawn): The [redacted] of claim 43, wherein said large liposomes comprise molecules [redacted] with a target cell or facilitating endocytosis by a target cell.